IPER Annex

Main Claim

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1.  Artificial urinary diversion device consisting of at least
    one first area with at least one outlet, one second area
    and one third area with at least one inlet, and which shows
10  in the second and/or third area a urinary bladder,

    characterized in that

    the second area (B) is arranged between the first and the
15  third area (A,C) and one of the cross-sectional surfaces
    (Q1,Q2) of the first and/or second area (A,B),
    perpendicular to the axial alignment of the urinary
    diversion device, are smaller than the cross-sectional
    surface (Q3) of the third area,
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    and one of the cross-sectional surfaces (Q1) of the first
    area (A) being larger than one of the cross-sectional
    surfaces (Q2) of the second area (B).

25  2.  Urinary diversion device according to claim 1,
    characterized in that the first, the second and the third
    area (A,B,C) can be compounded modularly, with each
    transition area defining a basic area, permitting a
    continuous transition of the urinary diversion system's
30  surfaces.

    3.  Urinary diversion device according to claim 1 or 2,
    characterized in that a fluid-guidance is provided, which
    extends from the urinary bladder preferably from the third
35  area (C) to the second area (B) via the first area (A).

4. Urinary diversion system according to one of the claims 1 to 3, characterized in that an actor or actuator, preferably a pump, preferably in the third area, is provided.

5. Urinary diversion device according to claim 4, characterized in that the pump is a telescope device.

6. Urinary diversion device according to claim 4, characterized in that the pump is a lever pump constructed with two chambers.

7. Urinary diversion device according to claim 4, characterized in that the pump is a screw pump, which is preferably arranged in the first area.

8. Urinary diversion device according to claim 7, characterized in that one of the screws can be moved laterally.

9. Urinary diversion device according to one of the claims 1 to 8, characterized in that a sphincter mechanism is provided, which is preferably arranged in the first area.

10. Urinary diversion device according to one of the claims 1 to 9, characterized in that a control is provided, which preferably controls the sphincter mechanism.

11. Urinary diversion device according to one of the claims 1 to 10, characterized in that a sensor system is provided, which monitors the filling level of the urinary bladder and preferably produces a sound signal or a seismical signal when reaching a certain filling level of the bladder.

12. Urinary diversion device according to claim 11 characterized in that the nerves responsible for the natural urinary bladder control the sensor system.

5  13. Urinary diversion device according to one of the claims 1 to 12, characterized in that a power supply is provided.

14. Urinary diversion device according to one of the claims 1 to 13, characterized in that an external recharge device,
10  which cooperates with a counterpart that is connected with the urinary diversion device, makes the power supply.

15. Urinary diversion device according to claim 14, characterized in that the recharge device cooperates
15  inductively with the counterpart.

16. Urinary diversion device according to claim 13 characterized in that said power supply is made by primary batteries that are integrated into the urinary diversion
20  device.

17. Urinary diversion device according to one of the claims 1 to 16, characterized in that an actor system is provided, which executes the pressing out or squeezing of the urine.

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18. Urinary diversion device according to one of the claims 1 to 17, characterized in that a bipartite or two-part fluidic part is provided in the third area and, depending on the filling level, one part is able to move away from
30  the other part.

19. Urinary diversion device according to one of the claims 1 to 18, characterized in that the third area shows one or two inlets.

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20. Urinary diversion device according to one of the claims 1 to 19, characterized in that one or two anti-reflux valves are provided, which are preferably arranged in the third area.

21. Urinary diversion device according to one of the claims 1 to 20, characterized in that a fixing element is provided.

22. Urinary diversion device according to claim 21, characterized in that the fixing element is connected with the urinary diversion device via a dovetail joint.

23. Urinary diversion device according to claim 21 or 22, characterized by a guide-rail system, in which the fixing element can be moveably included and locked at a suitable position, and the guide-rail system being preferably integrated into the third area.

24. Urinary diversion device according to one of the claims 21 to 23 characterized in that the fixing element comprises a splay or expanding element, which is preferably totally included.

25. Urinary diversion device according to claim 24, characterized in that the fixing element is made of biocompatible, elastic material, preferably silicone.

26. Urinary diversion device according to one of the claims 1 to 25, characterized in that, among a first outline, the shape of the urinary diversion device corresponds to a polynomial function of $6^{th}$ degree

$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

with the coefficients in the domains $0<A<2$; $0<a_1<8$; $-2<a_2<0$; $0<a_3<1$; $-0,1<a_4<0$; $0<a_5<0,003$; and $-0,00001<a_6<0$ within a domain of $0<x<22$.

5    27.   Urinary diversion device according to claims 1 to 26, characterized in that, among a second outline, the shape of the urinary diversion device corresponds to a polynomial function of $6^{th}$ degree,

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$$F(x) = A + a_1x + a_2x^2 + a_3x^3 + a_4x^4 + a_5x^5 + a_6x^6$$

with the coefficients in the domains $0<A<2$; $0<a_1<8$; $-2<a_2<0$; $0<a_3<1$; $-0,1<a_4<0$; $0<a_5<0,003$; and $-0,00001<a_6<0$ within a domain of $0<x<22$.

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28.   Urinary diversion device according to one of the claims 1 to 27, characterized in that the first, the second and the third area are formed integrally.

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